

SelectCell

RIVER GUM 120



Manual

Installation - Service

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1. Introduction

SelectCell River Gum 120 is a battery storage system composed of four battery modules connected in series and controlled by a BMS. The individual battery modules have a voltage of 35.2V and usable energy of 11.05kWh, while each system or Tower has a nominal voltage of 140.8V and usable energy of 44.2kWh. Up to 32 Towers can be connected in parallel, with a maximum energy of 1.41MWh.

Each Tower is stand-alone but can be secured between multiple Towers for increased stability. The installed system requires minimal commissioning and configuration, allowing for simple plug-and-play. The paralleled Towers are hot-swap-able, which ensures that the system can continue to operate even if one of the Towers fails.

The unique BIC design makes communication more stable and reduces system stoppages caused by communication failures.

2. Glossary

Terms	Full Name
BMS	Battery Management System
BIC	Battery Information Collector
SOC	State of Charge
PE	Protective Earth

3. Safety

- When installing, commissioning, operating and maintaining the product, the safety requirements in this manual should be strictly observed.
- Incorrect installation may lead to damage to the product and other property or injury or death of the operator or third parties.
- When fixing the product with screws or other parts, use the correct tools and apply the required torque as indicated in this manual, otherwise it may be unstable or damaged.
- When using various tools, ensure prior training in advance to prevent injury from improper use.
- Please read this manual thoroughly before installation to ensure proper and safe installation and use of the product.

Warning and Caution

1. Installers and users are obliged to familiarise themselves with this manual.
2. Power Cables and plugs have hazardous voltages from the battery; be careful when wiring.
3. Ensure that a fire extinguisher is in place prior to installation and use.
4. Installation and operation must be carried out by qualified personnel and suitably located for appropriate access.
5. Note that each battery module weighs 90kg. It is recommended that these be installed by at least two personnel or by means of appropriate lifting equipment.

3.1. Intended Use

SelectCell River Gum 120 is a high-voltage lithium-iron battery designed to work with Selectronic SP PRO Series 2i 120V inverters for residential, commercial and industrial (C&I) applications. It supports On-Grid, Off-Grid, and backup operation with compatible inverters.

A Wi-Fi module within the BMS enables internet connectivity for remote monitoring and firmware updates. Its IP65 enclosure allows indoor or outdoor installation. Use only with compatible inverters.

Safety: SelectCell River Gum 120 must not be used to power life-sustaining medical equipment. Ensure that any loss of battery power cannot result in personal injury.

3.2. Battery Module Leakage

Stop using any damaged battery module immediately. Isolate it and arrange disposal through an authorised battery/e-waste recycler in accordance with local regulations.

A damaged module may leak electrolyte. Exposure can cause breathing difficulties, skin or eye irritation, or chemical burns.

If exposure occurs, act at once:

- **Eyes:** Rinse gently with running water for at least 15 minutes and seek urgent medical care.
- **Skin:** Rinse under running water for at least 15 minutes, remove contaminated clothing, and seek medical attention.
- **Inhalation or ingestion:** Move to fresh air/leave the area and seek medical assistance.

3.3. Fire

- Battery modules may ignite if located too close to a flame or the temperature of the environment is unusually high.
- Carbon monoxide, carbon dioxide, and other gases may occur if the battery is on fire.
- Vacate personnel from the fire area in a timely manner, use full-face self-contained breathing apparatus (SCBA) with full protective gear during fire fighting and use a dry chemical fire extinguisher to cool and extinguish the battery to prevent the fire from spreading.

3.4. Handling

- Installers should be careful during installation in order to prevent damage to the battery.
- If the battery has been damaged before installation, including but not limited to shell damage or terminal port damage, please do not use and contact Selectronic Australia.
- Protect the battery from being damaged during transporting and handling.
- **DO NOT** clean the battery with corrosive chemicals or spray or allow foreign objects to enter the battery.
- **DO NOT** unplug any cables directly while the battery is in operation.
- **DO NOT** use the battery together with batteries of other brands or types.
- **DO NOT** short circuit the battery modules.
- Avoid subjecting the battery to external forces, such as being dragged on the ground, or having heavy objects placed on the battery.

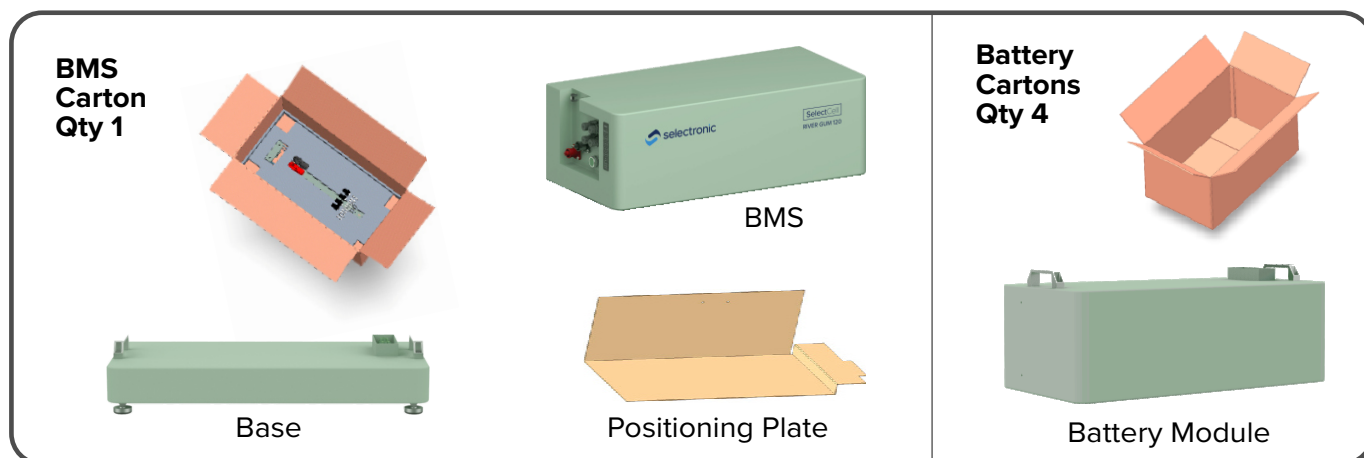
3.5. Storage

- **DO NOT** install or store the battery modules in an environment that exposes them to direct sunlight or high humidity, and ensure that they are kept away from heat and water.
- Batteries stored for a long period of time (≥ 6 months) should be charged periodically to prevent irreversible damage caused by low battery power.
- If the battery is stored for a long period of time, they should be maintained at around 25°C.
- If the battery is only stored for a short period of time, they should be maintained between 0°C and 35°C.

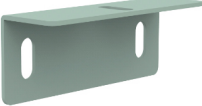
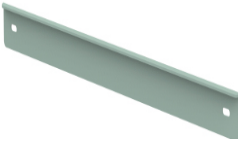
4. Product Information

4.1. SelectCell River Gum 120 Package

4.1.1. BMS and Battery Cartons



4.1.2. Accessories: are located in the BMS carton

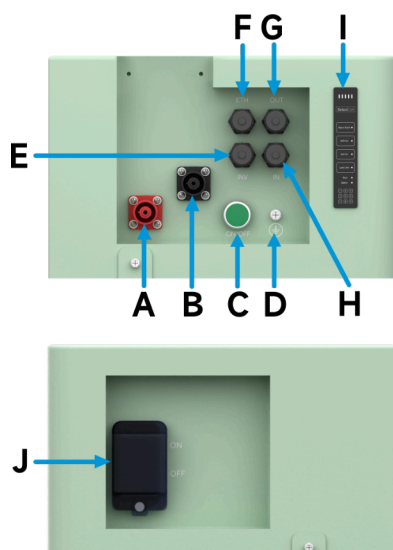
 <p>Part A x 1 BMS Bracket</p>	 <p>Part B x 1 Wall Bracket</p>	 <p>Part C x 2 M6 Expansion Screw</p>	 <p>Part D x 2 M5 Slotted Step Bolt</p>
 <p>Part E x 23 M5 x 12mm Bolt</p>	 <p>Part F x 1 Connecting Bracket</p>	 <p>Part G x 10 Retaining Plate</p>	 <p>Part H x 1 Terminal Cover</p>
 <p>Part J x 1 Red Connector</p>	 <p>Part K x 1 Black Connector</p>	 <p>Part L x 2 16mm 'P' Clip</p>	 <p>Part M x 4 RJ45 Connector</p>

4.1.3. Extra Accessories

The extra accessories below are **not** included in the contents, but necessary for system installation.



4.2. Functional Area on BMS



Letter	Label	Function
A	+	DC+
B	-	DC-
C	ON/OFF	ON/OFF
D	PE	PE Connection
E	INV	Inverter Comms
F	ETH	Ethernet
G	OUT	Comms Out
H	IN	Comms In
I	HMI	Human Machine Interface
J		Circuit Breaker

4.3. SelectCell River Gum 120 Specifications

Module Parameters		
Battery Type	LiFePO4 (Lithium Iron Phosphate)	
Energy (Usable)	11.05kWh	
Nominal Voltage	35.2V	
Weight	Each Battery Module: 90kg	BMS: 32kg
Carton Size L x H x D / Weight (kg)	Each Battery Module: 785mm x 415mm x 400mm / 94.1kg	BMS: 785mm x 340mm x 400mm / 36kg
Tower Parameters (4 Modules plus BMS)		
Energy (Usable)	44.2kWh	
Nominal Voltage	140.8V	
Voltage Range	112.2V to 165V	
Max. Continuous Current (Single Tower only)	166A	
Max. Continuous Current (Multiple Towers)	166A x 0.85 x number of Towers	
Peak Current (5s)	300A	
Battery Short Circuit Current	2000A	
Efficiency (@0.5C)	96%	
Communication	CAN bus	
Cycle Life	> 6,000 (25°C)	
Certificates	UN38.3 / CE / IEC62619	
IP Rating	IP65	
Charging Temperature	0°C to 50°C	
Discharging Temperature	-20°C to 50°C	
Scale-able	Max 32 systems in parallel: 1.41MWh	
Tower Size L x H x D / Weight	750mm x 1379mm x 360mm / 392kg	
Warranty	10yrs @ 70% - conditions apply	

5. Installation

This section provides important information and detailed guidelines to ensure a safe and smooth installation process.

Installation should be well considered and all the specifications of the battery should be understood to determine a suitable location and appropriate method for the installation.

5.1. Requirement for Installation Location

The location of the battery installation should be selected to ensure safe operation and long-term use. Please choose a location where the battery can be easily connected and serviced. In addition, the battery installation location should be chosen to meet the following conditions as much as possible:

- Keep the battery at least 5 metres away from high temperatures or any significant source of heat (e.g. fire sources, transformers and heaters) to avoid overheating.
- The installation environment must be free of flammable and explosive materials.
- Ambient temperature between 15-30°C, air humidity between 0-95% and both temperature and humidity should keep as constant as possible.
- Mounted on a concrete slab with no inclination angle or unevenness.
- Clean environment, no large amount of dust.
- Avoid direct sunlight, rain and snow.
- Well-ventilated with good air circulation.
- Keep away from children or pets to prevent injury by accident.

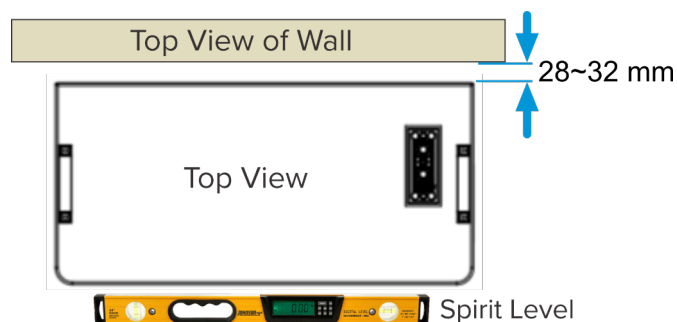
5.2. Recommended Tools



5.3. Base Installation

The base designed for SelectCell River Gum 120 is adjustable via four corner feet bolts. The height of the base can be adjusted to meet different needs. It is recommended that SelectCell River Gum 120 be secured to an adjacent wall.

- When locating the base, ensure the distance between the base and the wall is between 28 - 32 mm.
- The base should be located on a solid pad to prevent the system from collapsing or tilting during use.
- A spirit level is recommended for use when adjusting the base feet.



5.4. Modules Stack Up and Position of Drilled Holes

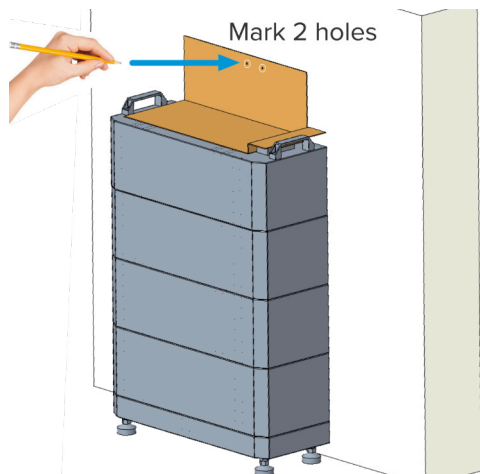
To make installation easier, there are no fixing brackets between the battery modules and the wall. Only the BMS is fixed to the wall to avoid the potential for system tilting or collapse.

Please follow the steps below to drill the securing holes before installing the BMS in place.

Step 1: Adjust the base to the proper height.

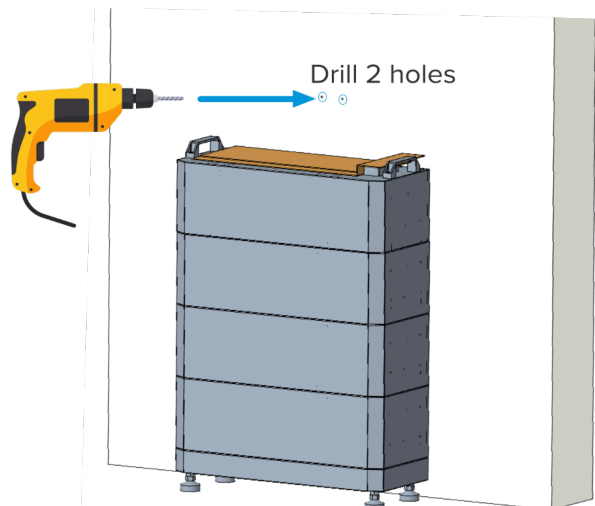
Step 2: Stack up all the 4 battery modules.

Step 3: Use the Positioning Plate (cardboard template) to locate and mark the position of the holes.



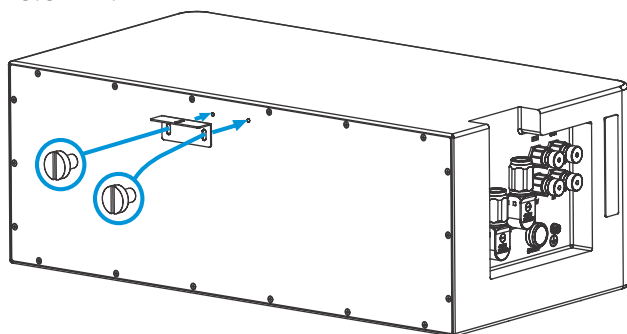
Step 4: Use the Positioning Plate to cover the connection terminal during drilling to prevent dust.

Step 5: Finish drilling.

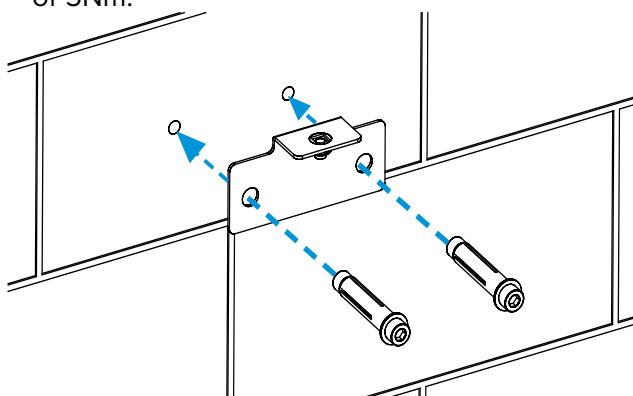


5.5. Fix to the Wall

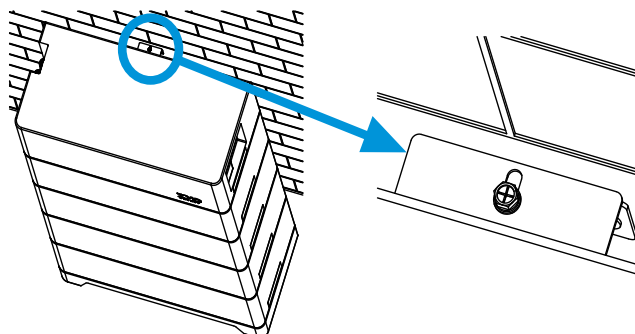
Step 1: Use Part D (Slotted Step M5 Bolt) to fix Part A (BMS Bracket) to BMS with a torque of 3.5 Nm.



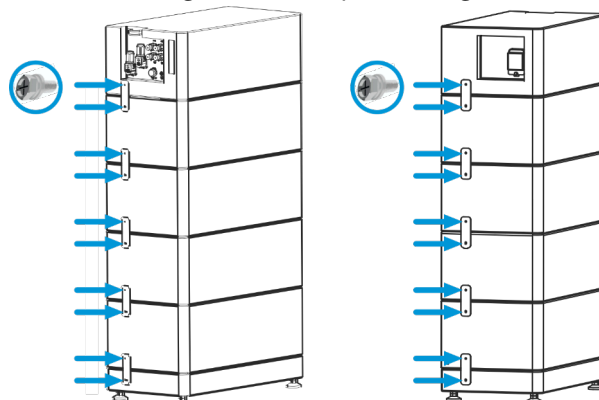
Step 2: Use Part C (M6 Expansion Screw) to fix Part B (Wall Bracket) to Wall with a torque of 5Nm.



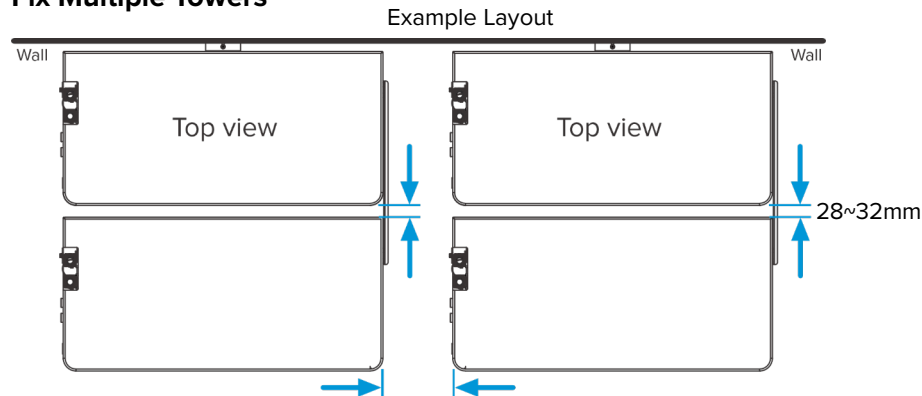
Step 3: Stack the BMS on the top of battery modules. Tighten Part E (M5 Bolt) with a torque of 3.5 Nm to fix Part A to Part B.



Step 4: Use Part G (Retaining Plates) and Part H (M5x10mm Bolts) to connect modules on both sides. Tighten to torque setting of 6Nm.

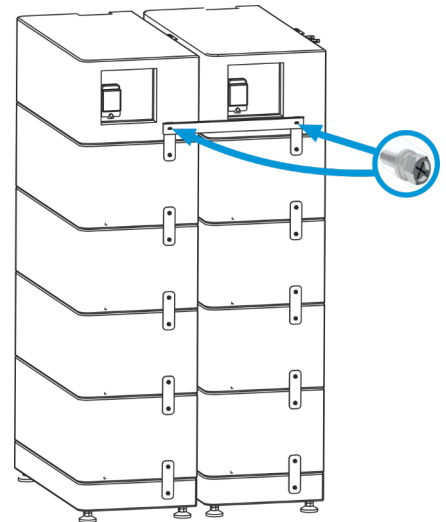


Fix Multiple Towers

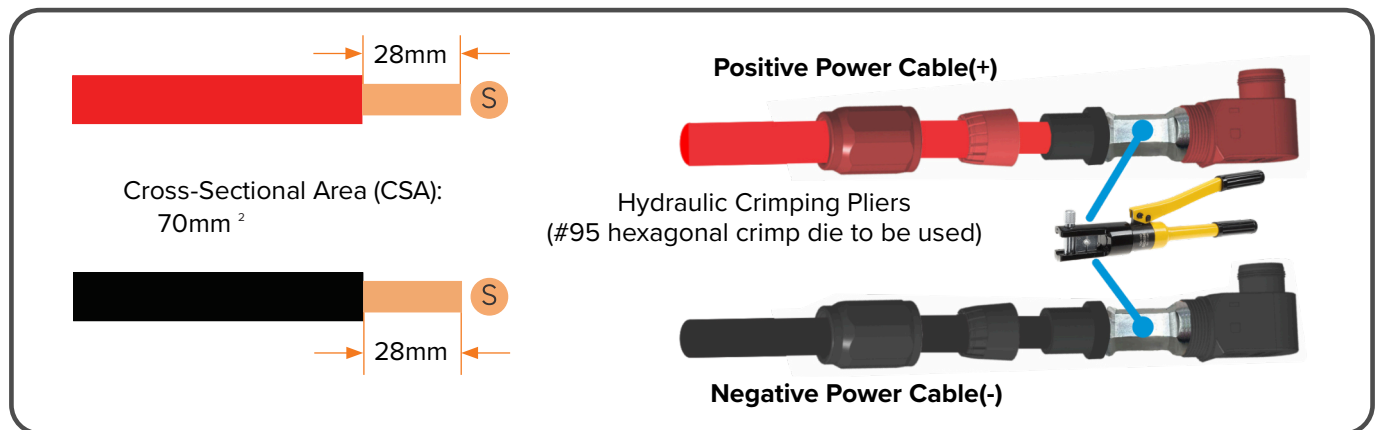


Allow access to all Breakers and HMI, in compliance with installation standards.

Use Part F (Connecting Bracket) on both ends of the BMS modules to connect two or more battery stacks together.



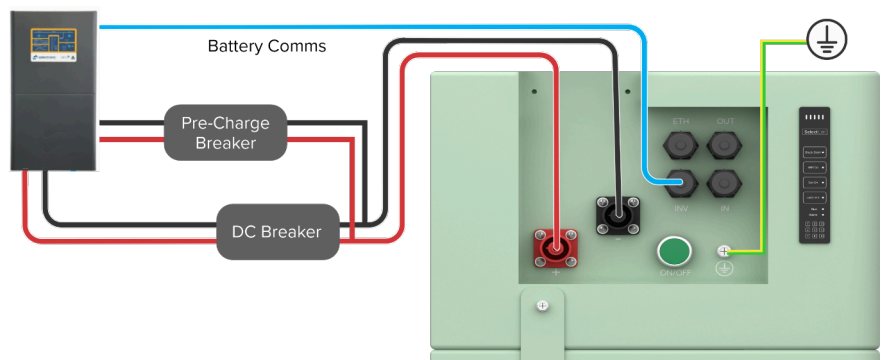
5.6. Power Cables Crimping



5.7. Cables Connection

5.7.1. Connection Overview

For Pre-Charge and Earth Leakage detector wiring instructions see [SP PRO Manual](http://www.selectronic.com.au/manuals)
www.selectronic.com.au/manuals



5.7.2. Connect the PE Cable

WARNING - High voltage (120V): Improper operation can cause serious injury or equipment damage. Before connecting power cables, ensure the protective earth (PE) cable (25mm²) is correctly fitted. Tighten the cable eyelet screw to torque setting of 5 Nm.



5.7.3. Connect the Power Cables

Step 1. Connect the BMS to the inverter with positive and negative power cables.

Step 2. Place the Terminal cover over the terminals

Step 3. Place Part L ('P' clips) over the power cables and screw Part H (M5x10mm bolts) holding the Terminal cover on as well. Tighten to torque setting of 6Nm.

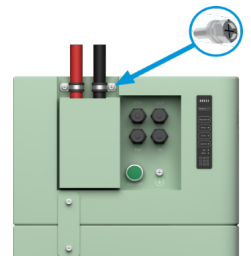
Step 1.



Step 2.

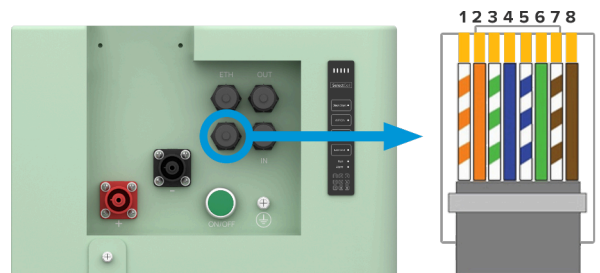


Step 3.



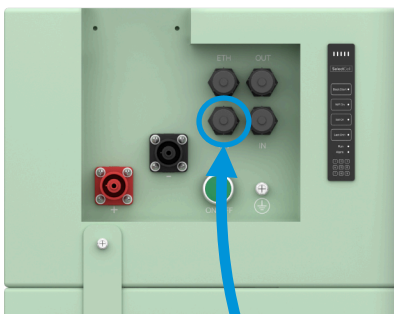
5.7.4. Connect the Communication Cable

- The SelectCell River Gum 120 and SP PRO Series 2i use different CAN bus pinouts.
- Use the SP PRO inverter CAN bus (BMS to SP PRO) RJ45 communication cable as supplied with the SP PRO.
- For IP65 applications crimp the RJ45 connector (Part M) provided in this package after routing the cable appropriately.

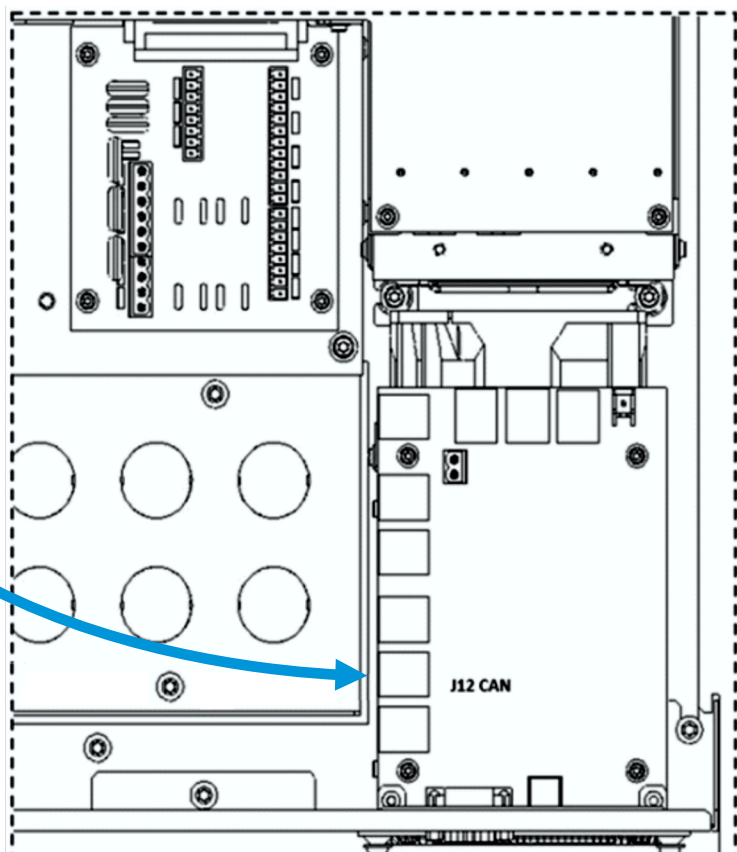


PIN No.	4	5	7	8
Definition	CAN_H	CAN_L	Null	Null

SelectCell River Gum 120

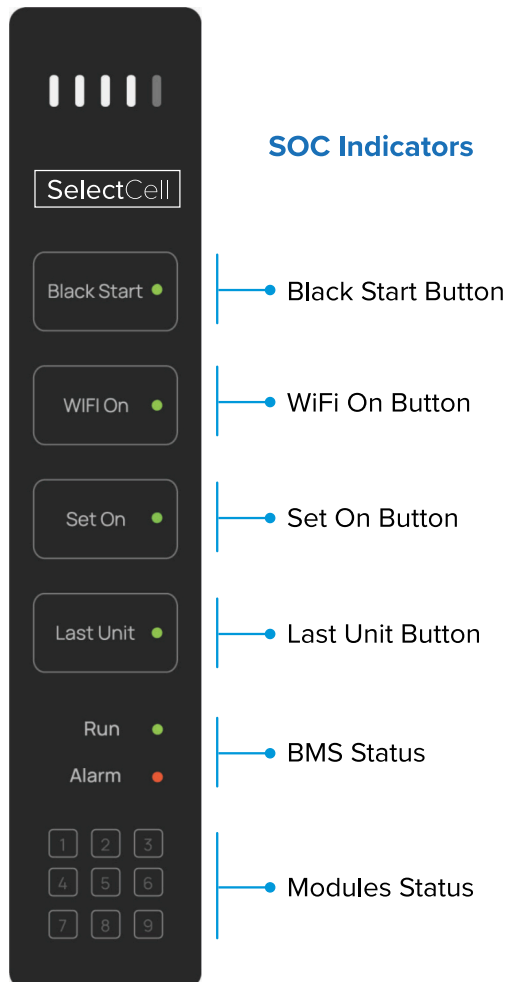


SP PRO Inverter (L1 only in a multiphase system)



6. Human Machine Interface (HMI)

A clear on-screen panel shows live system info and battery level, and allows Black Start feature, set up Wi-Fi, and identify the Tower.



6.1. SOC Status

 $80\% < \text{SOC} \leq 100\%$

 $60\% < \text{SOC} \leq 80\%$

 $40\% < \text{SOC} \leq 60\%$

 $20\% < \text{SOC} \leq 40\%$

 $0\% < \text{SOC} \leq 20\%$

Charging: Flashing once every 2 seconds

Discharging: Flashing once per second

6.2. Black Start

- After powering up the system, press and hold the 'Black Start' button for 3 seconds to activate.
- Once activated, energy will be supplied to the inverter.
- Once the inverter starts working, the black start function will automatically terminate and the LED goes off.



Default

Black Start On

6.3. Wi-Fi On

Press 'WIFI On' to enable Wi-Fi.

LED meanings (Wi-Fi on):

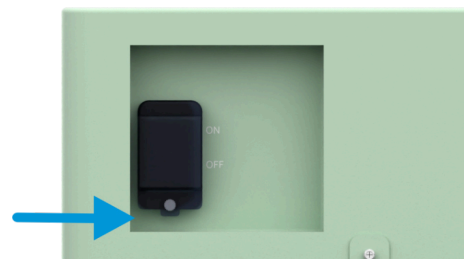
- **Slow flash:** Connected to the internet
- **Normal flash:** Connected to a mobile device
- **Solid on:** Not connected to any device/internet
- **Off:** Wi-Fi is off



Wi-Fi is Available

Wi-Fi is Off

Wi-Fi Name and Password are located
under the Circuit breaker:



6.4. Set On

- Press 'Set On' to enable the comms termination resistor
- **Single Tower:** leave 'Set On' as default, On.
- **Multiple Towers:** see **Section 7**.



Default

Set On

6.5. Last Unit

- Applies to multiple parallel configurations
- Press Last Unit button ON to identify the last Tower
- For instructions, see [Section 7](#) Parallel Multiple Towers.



Default

Last Unit

6.6. Run

- **'Run' On:** System Power On
- **'Run' Off:** System Power Off



Power On

Power Off

6.7. Alarm

- **'Alarm' Off:** system normal
- **'Alarm' On:** fault present



Default

Fault

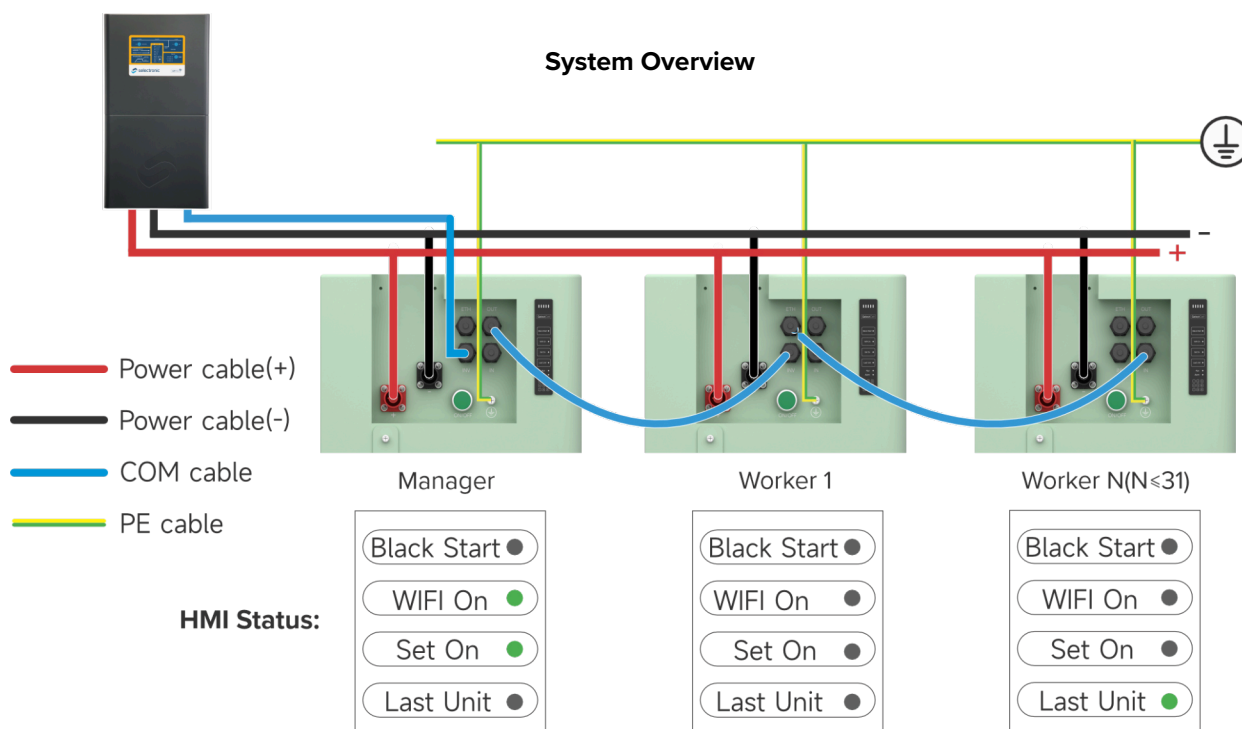
6.8. Module Status Indicators

Shows the status for one Tower's four modules

- **1 - 4:** Identifies modules top to bottom
- **5 - 9:** Not used
- **Normal:** Number LED Off
- **Fault:** Number LED On



7. Parallel Multiple Towers



Please note when multiple Towers are connected in parallel:

- Connect only the Manager Tower directly to the inverter.
- Make sure each Tower has 4 battery modules + 1 BMS + 1 base. Incomplete Towers will cause parallel setup to fail (voltage imbalance).
- Connect the PE (earth) cable on every Tower.
- Daisy-chain comms between Towers: Manager 'OUT' to 'IN' of Worker 1, then 'OUT' to 'IN' to the next Worker, and so on.
- Ensure HMI status as above.
- Connect the inverter to the BMS Manager using the SP PRO comms cable: Manager INV port → inverter.
- Connect each Tower's power cables to a DC switchboard or common busbar.
- Ensure SP PRO Pre-Charge and system Earth Leakage is installed and functioning.
- Connect the DC switchboard/busbar to the inverter(s).

Important: Keep the cable length from each Tower to the DC panel the same.

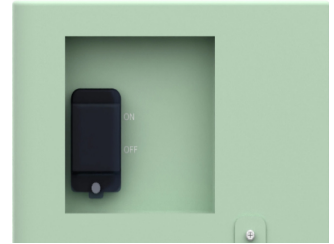
After finishing the above operations, you can initiate the battery system by following the steps outlined below:

1. Turn on the Circuit Breaker of all Towers.
2. Press the 'ON/OFF' button on all Towers to start the whole system.
 - Check the HMI status of each Tower as below:
Only the 'Set On' LED on the Manager Tower is On
 - Only the 'Last Unit' LED on the Last Tower is On.
 - All LED's on Workers will be Off
 - Only the 'WIFI ON' of the Manager Tower will be On and detected.

8. Commissioning

8.1. Circuit Breaker

Each BMS has a built-in circuit breaker that protects all modules in its Tower. If an over-voltage, over-current, over-discharge, or internal fault occurs, the breaker trips automatically to isolate and protect the modules. Circuit breaker current rating 250A.



8.2. System Startup

Before starting up the system, make sure that all PE cables, power cables and communication cables are properly connected.

Follow the steps below to start up the system:

1. Turn on the Pre-charge breaker between battery Tower/s and the first SP PRO inverter only.
2. Turn on the Main Circuit Breaker (MCBs) of all Tower BMS units.
3. Press the 'ON/OFF' button on all Tower BMS units for 1 second to power on the system.
4. Press and hold the 'Black Start' button on the BMS Manager until the LED lights. Wait until the SP PRO powers up.

5. First-time Setup:

Without comms, the BMS will timeout and shut down after 10 minutes. To avoid this, configure the battery type in SP LINK first.

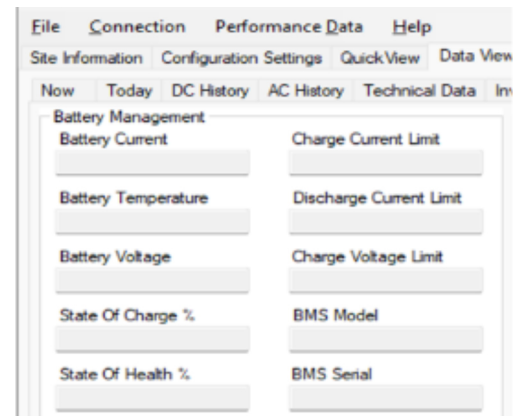
L1 System Manager SP PRO:

- Update SP PRO firmware (minimum 16.10/5.24).
- In SP LINK, set Battery Type to 'River Gum 120' and configure.
- See if there is any data under Data View > battery Management.

Any other SP PROs:

- Update firmware.
- Re-configure from the System Manager SP PRO using the SP LINK Site Configuration Wizard.

6. Turn on the Pre-charge to all the remaining SP PRO inverters.
7. Turn on the main DC breakers on all the SP PRO inverters.
8. Check the HMI status on each Tower BMS.



Refer to image in [Section 7](#)

8.3. System Shut Down

1. Shut down the inverters.
2. Turn off the DC breaker between battery and inverter.
3. Press and hold the 'ON/OFF' button of battery Manager Tower for 3secs until all MCBs turn off automatically.
4. Make sure all the LEDs on the BMS are off.

8.4. Charging and Discharging

SelectCell River Gum 120 is a very powerful battery, equipped with the latest low temperature technology making it not only able to discharge at -20°C, but also allows charging at 0°C.

The charging temperature is recommended to be between 0°C to 50°C and discharging temperature is between -20°C to 50°C.

The Charging and Discharging parameters are described in [Section 4.3](#)

9. Connect to the Internet & Selectronic Monitoring Tools

SelectCell River Gum 120 BMS is equipped with a Wi-Fi module, so no additional components are required for remote monitoring.

Options for BMS monitoring are as follows:

1. Local Connection: Connect directly to the BMS

- Ensure Wi-Fi is enabled on the Manager Tower.
- Using a laptop or mobile phone, connect to the BMS Wi-Fi hotspot directly, using your device Wi-Fi settings.
- Monitor the system via the **River Gum View** PC App or **River Gum View** Mobile App.

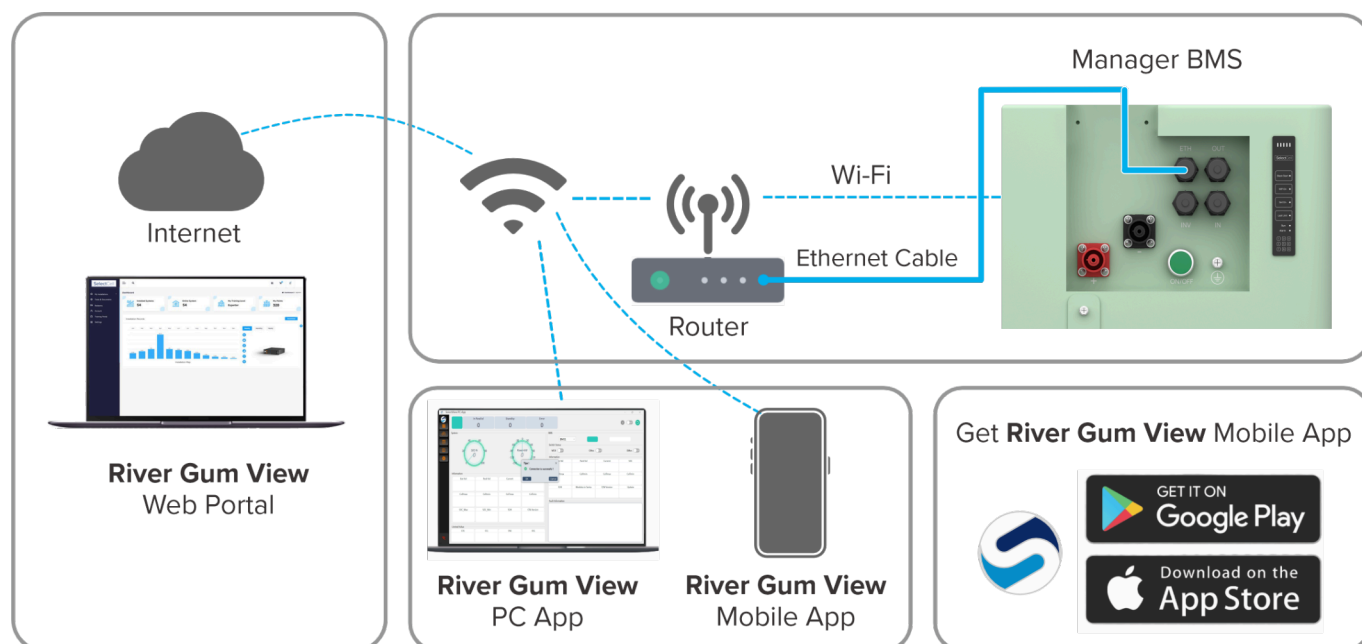
2. Remote Connection: Monitor via an internet connection.

First establish an internet connection with the BMS.

- LAN Connection: Connect the ETH (Ethernet) port of the Manager BMS to an internet connected router.
- Wireless Connection: Connect to the BMS Wi-Fi hotspot. Open the River Gum View PC App or River Gum View Mobile App and join the system to the site's Wi-Fi network.

Once online, you can monitor the system remotely via the Selectronic **River Gum View** PC App or **River Gum View** Mobile App or **River Gum View** Web Portal .

Internet Connection Schematic:



10. Maintenance and Storage.

10.1. Cleaning

The SelectCell River Gum 120 batteries should be kept clean as part of regular maintenance. If there is dust or stains on the enclosure of the SelectCell River Gum 120, use a brush or soft moist towel to wipe the enclosure to remove.

DO NOT use any corrosive solution that may damage the battery when cleaning the enclosure.

10.2. Long Term Storage

The battery voltage should be checked if the battery modules are stored for longer periods of time (≥ 6 months):

If the battery module voltage is higher than 35.2V, the battery is in good condition and does not need to be charged. After that the batteries should be checked every 3 months.

If the battery voltage is lower than 35.2V, the battery should be charged to prevent irreversible damage caused by low battery power. It is recommended to charge the battery with 68VDC and 10A constant current for about 30 minutes.

11. Disposal of SelectCell River Gum 120

When disposing of discarded SelectCell River Gum 120 battery modules and BMS, observe local regulations for the disposal of electronic waste and used batteries. Observe the following requirements:

- DO NOT dispose of SelectCell River Gum 120 components together with household waste.
- DO NOT leave waste batteries in direct sunlight or high temperature.
- DO NOT dispose of used batteries in high humidity or corrosive environments.

12. Date of Manufacture

To determine the date of manufacture of the product, please find the serial number on the nameplate. Ignore the last four digits and locate the six digits that will be the YYMMDD (in the red box)



13. Warranty

For more information about the warranty, please visit the Selectronic website www.selectronic.com.au

14. Contact Us

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15. Notes: